



Gaumard®
Simulators for Health Care Education



HAL® 3000....a proven tetherless simulator

- Easy to use
- Fully responsive in transit
- Wireless control and documentation

HAL® is tetherless, wireless and fully responsive ... even in transit

Airway

- Oral or nasal intubation
- Programmable airway
- Perform tracheostomy or needle cricothyrotomy
- Sensors detect depth of intubation
- Unilateral chest rise with right mainstem intubation
- Multiple upper airway sounds synchronized with breathing

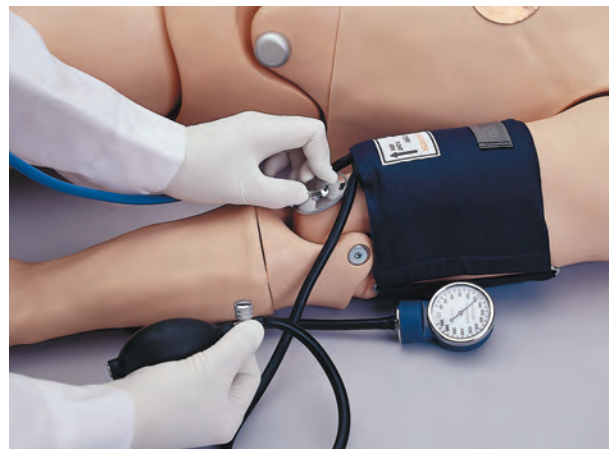


Breathing

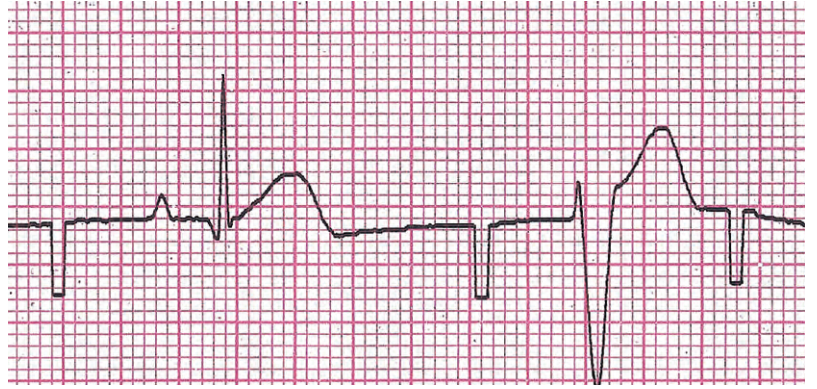
- Control rate and depth of respiration and observe chest rise
- Ventilation is measured and logged
- Gastric distention with excess BVM ventilation
- Select independent left, right, upper, and lower lung sounds
- Chest rise and lung sounds are synchronized with selectable breathing patterns
- Accommodates assisted ventilation, including BVM and mechanical support
- Needle decompression and drainage sites
- Left and right unilateral chest rise simulates pneumothoraces

Circulation and color change

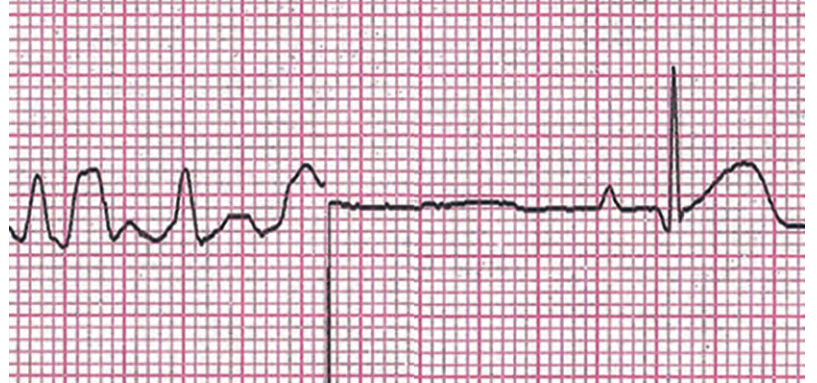
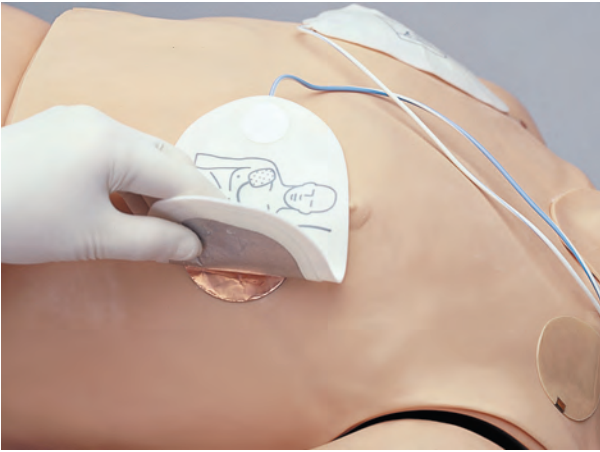
- Multiple heart sounds, rates, and intensities
- Chest compressions are measured and logged
- Blood pressure can be taken bilaterally using a cuff, palpation, or auscultation
- Radial pulse stops when cuff pressure exceeds systolic pressure
- Korotkoff sounds audible between systolic and diastolic pressures
- Pulses are continuous, synchronized with the ECG, even during a paced rhythm



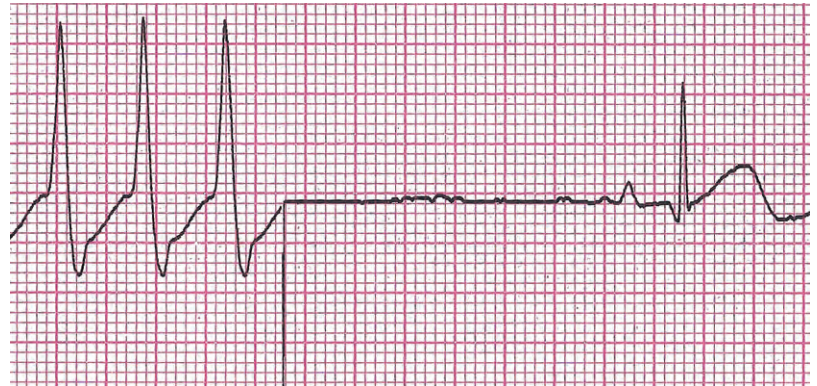
HAL's electrically conductive skin regions allow the use of *real* equipment for obtaining an ECG, performance of temporary pacing, and defibrillation



Attach real electrodes and view HAL's ECG generated in real time. HAL's ECG features physiologic variations in rhythm, never repeating textbook patterns. Here pacing therapy converts HAL's profound bradycardia into paced ventricular rhythm.



Attach AED pads directly to HAL's conductive skin. Your AED will display HAL's ECG, analyze his cardiac rhythm, and advise action. Program HAL's response to defibrillation. Stack shocks as needed. AED shown converting HAL's ventricular fibrillation.



Use monophasic or biphasic defibrillators on HAL's skin. Shock HAL using your defibrillator just like a real patient. HAL even distinguishes between defibrillation and synchronized cardioversion. Shock resolves pulseless ventricular tachycardia.

Control HAL® using a wireless tablet PC to quickly generate multiple life threatening situations ... and track the actions of care providers

- Use our preprogrammed scenarios. Modify them or create your own
- Specify HAL's condition on the Details page
- Save each condition as a physiologic state on the Palette page

Hal User Interface - QUICK START SCENARIOS

File Setup Monitors CPR Help

50 100 150 200 300 360 sync **Gaumard®**

Legend ☐ On ☐ Off

Status

Airway

- ☒ Tongue Edema
- ☒ Pharyngeal swelling
- ☒ Laryngospasm
- Throat Sound: **normal**

Breathing

Resp. Pattern: **normal**

Rate: 13 bpm In: 33 %

☒ Right Lung **F B**

Up and **normal**

Lo and **normal**

☒ Left Lung **F B**

Up and **normal**

Lo and **normal**

☒ Pneumothorax (O2-Sat: 99 % (EtCO2: 40 mmHg))

Circulation

Cardiac Rhythm: **Sinus**

Heart Rate: 75 bpm

☒ Sinus arrhythmia

Heart Sound: **normal**

Blood Pressure: L **120** / R **80** mmHg

Absent Pulses: ☒ L ☒ R ☒ Pedal ☒ L ☒ R

More...

Details **Palette** **Scenario** **Speech** **Log**

Clear Settings Load Palette Item Save as Palette Item

Healthy Resting

Airway ☒ Tongue Edema ☒ Pharyngeal Swelling ☒ Laryngospasm Upper Airway Sound: **normal**

Breathing Respiratory Pattern: **normal** Left Lung ☒ Chest Rise Right Lung ☒ Chest Rise

Respiratory Rate: 13 breaths / min (OSet) 99 % change Sounds: upper **normal** lower **normal**

Inspiratory Time: 33 % (EtCO2) 40 mmHg % change Sounds: upper **normal** lower **normal**

☒ Pneumothorax

Circulation Cardiac Rhythm: **Sinus** -> options: **Sinus**

Blood Pressure Systolic **120** Diastolic **80** mmHg % change

Absent Pulses ☒ Radial Left ☒ Radial Right ☒ Pedal Left ☒ Pedal Right

Trauma ☐ Left Leg Amputation ☐ Left Leg Bleeding

Other (Temperature: 98.6 °F) Eyes State: 15 blinks/min

Pupils L 4 Enable Pxn Time (sec) 0.5 R 4 Enable Pxn 0.5

Apply

NOW 10 sec 30 sec 1 min 2 min 5 min 10:00 min Edit...

Clocks Transition remaining: 00:00:00 Session: 00:00:59

Evaluation Care Provided: **Unsatisfactory** **Satisfactory**

Note: <- Add to log

Power **ON**

- Combine physiologic states to build a scenario
- Select the time HAL is in each state
- Build in delays between states or specify smooth transitions
- When activated HAL will progress from one state to the next. Use stylus control to jump between states
- Actions are logged and time stamped for evaluation and debriefing

Hal User Interface - QUICK START HAL

File Setup Monitors CPR Help

Gaumard®

Clear Load Scenario... Save Scenario... Scenario Auto-Responses...

Brent 55-year old male complains of substernal chest pain radiating to the jaw. Patient is diaphoretic. more...

Add to scenario...

Name	Transition	Description
Brent	00:00	V. Tach. 180bpm, BP 70/40
BP -30%	03:00	30% reduction in blood pressure
Wait indefinitely	...	electrical therapy expected
SVT	00:00	180 bpm, BP 100/60
Wait	00:15	No changes are made to HAL.
V Tach, stable	00:15	RR 18/min, HR 140bpm, BP 120/80
Wait indefinitely	...	drug therapy expected
Healthy Resting	00:25	normal vitals

Selected Item

Move

Edit Transition

Insert...

Remove

Duplicate

Properties

Clocks Transition remaining: 00:02:52 Session: 00:03:08

Evaluation Care Provided: **Unsatisfactory** **Satisfactory**

Note: <- Add to log

Power **OFF**

HAL® ...tetherless technology was pioneered by Gaumard in 2004

Rush HAL from the accident scene, while care providers diagnose and treat his condition using real monitoring and resuscitation equipment. Control HAL at distances up to 300 meters and between rooms and floors of conventional buildings. HAL smoothly transitions between physiologic states in response to commands from a wireless PC

HAL is fully functional where you need him:

- Back-board or EMS cart
- EMS vehicles
- Life flights
- Simulated disaster scenes
- Your simulation center

Use our scenarios designed by emergency medical professionals or quickly create your own

HAL has conductive skin regions so you can:

- Apply real electrodes and AED pads
- Use real EMS equipment
- See HAL's ECG on your AED

HAL is perfect for competency based programs:

- Sensors track student actions
- Changes to HAL's condition and care provided are time stamped and logged for evaluation and debriefing
- Instructors evaluate caregiver interventions with a single click and insert notes on a real time performance log
- Save caregiver performance, forward to any standard printer, or send anywhere via the internet



Eyes open and close. Blink rate, pupil size and pupillary response to light is programmable

Palpation



Bilateral carotid, radial, brachial, femoral, and pedal pulses operate continuously. Pulse strengths vary with HAL's blood pressure and pulses are synchronized with the ECG

Venous Access



Bilateral IV training arms; adjust HAL's response to boluses and/or IV infusion

Trauma



Two sites each for needle decompression and chest drainage. Programmable seizures

HAL® ... a part of Gaumard's growing family of tetherless simulators

Simulator

- Full-size adult
- Self-contained respiratory and circulatory functions
- Eyes open/close, pupils dilate and are light responsive
- Cyanosis around mouth
- Airway, heart, lung and bowel sounds
- Interchangeable genitalia

Control

- Wireless tablet PC with stylus control
- Preprogrammed scenarios
- Build your favorite scenarios

Accessories

- 100-240 VAC charger
- Blood pressure cuff
- Six (6) neck collars
- Six (6) replaceable pneumothorax decompression sites
- Instructions for use

S3000

Patented; other patents pending

Selected HAL Options

- Programmable amputation leg

S3000.050

- Programmable amputation arm

S3000.051

- Casualty Kit

S3000.006

- Intraosseous Leg

S3000.028

- Bilateral oxygen saturation sites

S3000.052

- Bilateral blood pressure sites

S3000.053

- Automatic "physiologic" control

S3000.008

- Integrated camera system

S3101.003

- Wireless streaming audio

S3000.007

- A/C powered touchscreen monitor

S3000.001

- D/C powered touchscreen monitor

S3000.002

- Simulator transport case

S3000.006

Other

- One year limited warranty; extended warranty to three years
- User manual and demonstration video make it easy to become a HAL expert
- Tutorial workshops available
- Patented. Other patents pending.
HAL is a registered trademark of Gaumard Scientific
- HAL support personnel available weekdays 8:00 a.m. to 7:30 p.m. ET

Optional Monitors

Monitor with 17" touch screen and wireless computer control features waveforms for ECG, invasive blood pressure, respiration, and carbon dioxide as well as numerics for temperature, NIBP, respiration rate and oxygen saturation.

S3000.001

Mobile monitor with 12" touchscreen and wireless computer control features same waveforms and numerics as above and is readily attached to a transporter. Includes recharging station and accessories.

S3000.002



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